DOCUMENT RESUME

ED 088 932 TM 003 492

AUTHOR Moran, Robert E.
TITLE Observations and Recommendations on the Puerto Rican Version of the Wechsler Intelligence Scale for Children.
INSTITUTION Puerto Rico Univ., Rio Piedras. Coll. of Education.
PUB DATE Feb 74
NOTE 11p.

EDRS PRICE MF-$0.75 HC-$1.50
DESCRIPTORS Children; *Culturally Disadvantaged; *Intelligence Tests; Non English Speaking; Norm Referenced Tests; *Puerto Ricans; Test Bias; Testing Problems; *Test Interpretation; Test Results; Test Reviews; Test Validity
IDENTIFIERS Escala de Inteligencia Wechsler para Ninos; Wechsler Intelligence Scale for Children (WISC)

ABSTRACT

Recommendations and criticisms are made which might result in a more reliable assessment of the Puerto Rican child's intelligence as measured by the Wechsler Intelligence Scale for Children (WISC). Many of these recommendations and criticisms involve typographical and grammatical errors, incorrect language usage, difficulty of item sequence and others. Further usage of the test should reveal to what extent these corrections will bring about a more valid assessment of the Puerto Rican child's general intellectual functioning. The discrepancy between the Puerto Rican and American WISC IQ's and standard deviation presents serious problems when interpreting Puerto Rican children's WISC IQ's and their subsequent classification. Included in the report is a table listing Puerto Rican IQ's (WISC) with their approximate converted American equivalents. These figures were extracted from normal curve tables, using the expected cumulative frequency distribution of the 720 cases included in the Puerto Rican sample. (DC)

ED 088932
T.. 003 492

OBSERVATIONS AND RECOMMENDATIONS ON THE PUERTO RICAN VERSION OF THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN

Roberto L. Morán, Ph. D.
College of Education
University of Puerto Rico
Río Piedras, Puerto Rico

OBSERVATIONS AND RECOMMENDATIONS ON THE PUERTO RICAN VERSION OF THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN

The translation and adaptation of an intelligence test from one language or culture to another is a task beset with problems, many of which are only brought to light after frequent usage of the test on a wide and varied population. The problems encountered by Puerto Rican psychologists in adapting the Wechsler Intelligence Scale for Children to Puerto Rico have been discussed by Roca (1955) in the pamphlet entitled "Problems of Adapting Intelligence Scales from One Culture to Another", and a description of the statistical procedure used, the sample tested, and other pertinent data are presented in the test manual.[1] In the latter it is judiciously pointed out that, "Although the valid ity of each question was determined on a large group of children, we believe that as this scale continues to be used some small changes will have to be made and in this way the results will be more reliable. (ibid. p. 129)

Thus, in keeping with this suggestion, the persons who received training by the author in the administration and scoring of the Puerto Rican version of the WISC [2] were requested to make recommendations and criticisms which might result in a more reliable assessment of the Puerto

---

[1] See test Manual "Escala de Inteligencia Wechsler para Niños", 1955, p. 129. Department of Education, San Juan, Puerto Rico, 1955

[2] The Wechsler Intelligence Scale for Children is universally known as the WISC

Rican child's intelligence as measured according to the concept of Wechsler, the author of the original test.. (Wechsler, 1944) Many of these recomendations and criticisms, which are presented later in this article, involve typographical and grammatical errors, expressions of language, difficulty of item-sequence and others. These corrections should be made when revising the Puerto Rican Version of the WISC. Further usage of the test and experimentation should reveal to what extent these corrections will bring about a more valid assessment of the Puerto Rican child's general intellectual functioning.

It seems that the most urgent task to be considered when revising this scale is the one arising from the existing discrepancy between the norms of the Puerto Rican Adaptation and those of the original Scale. It was observed that, although the validity and order of difficulty of each test-item were determined, the distribution curve of IQ's on the Puerto Rican WISC was not exactly a normal one. The Puerto Rican WISC mean IQ is 88.01 and the median 87.94. Standard deviation is 21.60. On smoothing this distribution curve, we find that it is similar to a normal curve. This is shown in Table 1. The Puerto Rican Mean WISC IQ is thus approximately 12 points lower than the American one. For Wechsler, on establishing norms for the WISC, "predetermined that the mean IQ should be 100 and the standard deviation 15".[1]

---

[1] American Association on Mental Deficiency

According to the statistical distribution of WSC IQ's on the Puerto Rican sample, children with IQ'sfrom 77-99- are to be considered of <u>average</u> intelligenc. This group includes 38% of the population. Childre with IQ's from 100-120 are to be classified as superior ad include 24% of the population. IQ's from 57-76 areto be considered low-normal and include 24% of the poplation. Children with IQ's of 56 or lower are to be considered abnormal and include 7% of the population. And , inally children with IQ's of 121 and above are to be classfied as very superior and also include 7% of the populaton.

This discrepancy between the Puerto Rican and American WISC IQ's and standard deviations (Mean Porto Rican WISC IQ-80,SD-22, Mean American WISC IQ-100; SD-15) presents serious problems when interpreting Puerto Rican children's WISC IQ'S and their subsequent classification.

If one applies the criterion suggested by the AMD [1] for defining subaverage general intellectual functining i.e., 'performance which is greater than one standad deviation below the population mean,' a Puerto Rica <u>WISC IQ of 66</u> would indicate the upper limit of metal retardation as compared with an American WISC IQ of85. (PR. WISC Mean IQ-80 ISD of 22-IQ=66; American WISC Mean IQ-100-ISD of 15-IQ-85).

---

[1] American Association on Mental Deficiency

Generally, mental retardation is defined statistically as being greater than two standard deviations below the mean, i.e., IQ of 70 and below. Applying this definition to the Puerto Rican population, a Puerto Rican WISC IQ of 44 would set the upper level of mental retardation as compared to an American WISC IQ of 70.

Although a word of caution is included in the final page of the Test Manual for the Puerto Rican WISC[1], this is limited to reminding the examiner that there is a difference of around 10 points in the Puerto Rican and American WISC IQ in favor of American children '. No suggestions are made however as how to deal with this difference.

Although an attempt to meet this problem was made, (Roca, op. cit. p. 15)[2] there still remains a certain amount of doubt as to how the IQ's on the Puerto Rican version are to interpreted. This leads to the unfortunate practice of different examiners giving different meanings to an identical IQ score. For example, one examiner might add 12 points on the Puerto Rican Scale, basing his action on the fact that there is a difference of 12 points between the American and the Puerto Rican means in favor of the American, and thereby

---

[1] Test Manual " Escala de Inteligencia Webster para Niños" Departamento de Instrucción, San Juan, P.R., p. 129

[2] Also see the " Manual de Instrucciones: Escala de Inteligencia Wechsler para niños., p. 115.

making the erroneous assumption that there is a linear distribution of IQ scores at the various levels of intelligence. Other examiners may simply note the IQ obtained and then merely add the precautionary phrase "This IQ (or classification) is based on the Puerto Rican norms for this Scale". The danger here is obvious! For example, a child, IQ 76, which according to Puerto Rican norms is only one point below the lower level of the normal range (77-99) might be classified as mentally subnormal if his test blank fell into the hands of persons not familiar with the existing disparity between the Puerto Rican and American norms. This is especially true when interpreting a Puerto Rican child's IQ for English-speaking teachers, psychologists, social workers and parents. There is also doubt as to whether a correction should be made of the IQ's on both the Verbal and Performance Scales and/or on the Full Scale IQ only. Clinical diagnosis or pattern analysis commonly obtained when using the original Wechsler test of intelligence are completely meaningless if applied by clinicians to test results on the Puerto Rican version of the WISC. Furthermore, possibly due to the influence of the Stanford-Binet, teachers and parents are often interested in knowing a child's mental age, which, if calculated from his IQ on the Puerto Rican Wechsler, would be completely erroneous and dangerously misleading.

Most teachers and parents (and even some psychologists) believe that the average person's IQ is 100. Thus, when reporting the IQ's of children tested on the adapted WISC who score within the average range, i.e. 77-99, the immediate conclusion reached by parents or teachers is that such childrenware to be classified as subnormal. Even with the most detailed and lucid explanation it is often difficult, if not impossible, to convince them that a child with an IQ of 88, according to Puerto Rican norms for the WISC is to be considered of average intelligence. The further the child's IQ falls below the mean, the more difficult and less convincing the explanation; and rarely does a parent or teacher accept unequivocally the fact that a child with an IQ of 69 on the Puerto Rican version of the WISC is not to be classified, per se, as mentally defective, as would probably happen when American norms are used. This misunderstanding of the concept of the IQ often leads to needless and avoidable parental feelings of anxiety and frustration, and possible errors on the part of teachers when classifying children.

Therefore, on revising the Puerto Rican version of the WISC, it seems that the initial step to be taken would be to restandardize norms on a wider and more representative sample, and at the same time, to consider the recommendations presented here. Proceeding in this

manner should reduce the statistical difference between Puerto Rican and American IQ's on this Scale. It should also be remembered that the three IQ's on the WISC (Verbal, Performance, and Full Scale IQ'S) are based on the sum total of converted raw scores and thus a correction or re-weighting of these scores might be indicated. However, until a complete revision of norms can be made, it would seem highly advisable to include a conversion table in the manual of the Puerto Rican Scale so that the present examiners would have a uniform method for calculating and interpreting Puerto Rican IQ's.

Psychologists interested in converting an IQ obtained on the Puerto Rican version of the WISC to an equivalent American one may use the following formula:

$$X = M_2 - \sigma_2 \frac{(M - Y)}{\sigma_1}$$

It must be remembered that this formula is based on the assumption that the Puerto Rican norms were obtained from a sample having a normal distribution of IQ's. In view of the fact that only 128 cases were tested, giving a S.D. of 21, in all probability there is some skewing and therefore converted Puerto Rican IQ's tend to become increasingly meaningless in proportion to the degree they deviate below the mean. For example; a Puerto Rican IQ of 46 (2 S.D.'s or 42 points below the Puerto Rican Mean) is equivalent to an IQ of 70 on the American (i.e. 2 S.D.'S or 30 points below mean 100).

In less extreme cases the above algebraic formula can be applied to convert a Puerto Rican IQ to its American equivalent. For example, to find the American equivalent of a Puerto Rican Full Scale IQ of 76, proceed as follows:

Let X = Converted American IQ

Y = Puerto Rican IQ or 76

M_1 = Puerto Rican Mean or 88

M_2 = American Mean or 100

σ_1 = Puerto Rican S.D. or 21

σ_2 = American S.D. or 15

If $X = M_2 - \sigma_2 \frac{(M_1 - Y)}{1}$

Then $X = 100 - 15 \frac{(88 - 76)}{21}$

$X = 100 - 15 \frac{(12)}{21}$

$X = 100 - 15 (.57)$

$X = 100 - 8.55$

$X = 91.5$

Thus a Puerto Rican IQ of 76 is equivalent to an American one of 91.5 or approximately 92.

It must be remembered that this formula is applicable to the Full Scale only, as Puerto Rican norms were calculated from this Scale and not from separate Verbal and Performance Scales.

Many testers may find the application of this formula rather cumbersome and time consuming. Therefore, we have

included in Table 1 a list of Puerto Rican IQ's (WISC) with their approximate converted American equivalents. These figures were extracted from normal curve tables, using the expected cumulative frequency distribution of the 128 cases included in the Puerto Rican sample. As can be seen, converted IQ's derived by this method approximate those obtained when using the above formula.

However, it has been suggested that since the original and converted IQ's are so close from IQ 1.8 upwards, rather than make conversion in this range, the original figure could be used.[1]

---

[1] Professor P. E. Vernon, Full Professor of Psychology and Statistics, University of London. In personal correspondence.

TABLE I

CONVERSION TABLE

PUERTORICAN WISC IQ's WITH THEIR APPROXIMATE AMERICAN EQUIVALENTS

Column I		Column II	
Puerto Rican Wisc	American Wisc	Puerto Rican Wisc	American Wisc
140	140	82	94
138	137	80	93
136	134	78	92
134	132	76	91
130	130	74	89
128	126	72	88
126	124	70	87
124	123	68	86
122	122	66	84
120	120	64	83
118	118	62	82
116	117	60	81
114	116	58	80
112	114	56	79
110	113	54	77
108	111	52	76
106	110	50	75
104	109	48	74
102	107	46	72
100	106	44	71
98	105	42	70
96	104	40	69
94	103	38	67
92	102	36	66
90	101	34	64
88	100	32	62
84	95	30	60